



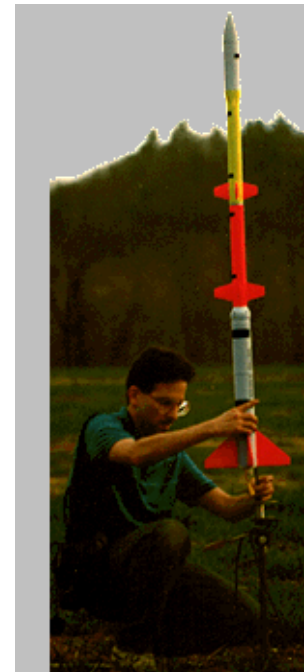
Model and High Power Rocketry

What is Model Rocketry?

Model rocketry was developed during the "space race" era as an alternative to the amateur rocket activity -- involving metallic airframes and the mixing of dangerous propellants -- that was responsible for injuring and even killing numerous young scientific experimenters.

Model rockets are constructed of much safer materials -- such as cardboard, plastic, and balsa wood -- and are fueled by single-use rocket motors manufactured by professional concerns. These rockets may be flown over and over simply by replacing the used motor with a fresh one. They typically contain a parachute, streamer, or other recovery device that allows them to land gently for later reflight. The modeler need never mix, pack, or work with explosives or propellants.

Today, model rocket kits and motors can be purchased in almost every hobby shop and toy store. Kits are designed for all ages and all levels of challenge, from simple starter kits to complicated scale models. Motor power ranges from "1/4A" (the smallest) to "G" -- enough power to lift a six-foot model and a hefty payload!



Model rockets must be flown in compliance with the Model Rocket Safety Code.

What is High Power Rocketry?

The major differences between model and high power rockets are propulsion power and weight.

Like model rockets, high power rockets are typically made of safer, non-metallic materials such as cardboard, plastic, and wood; but they use motors in ranges over "G" power and/or weigh more than laws and regulations allow for relatively unrestricted model rockets.

High power rocket engines cannot be purchased over the counter by the general consumer. Typical hobby stores do not carry them. They can be mail-ordered by adult modelers who are qualified to purchase and use them. The NAR offers a qualification program for modelers who want to fly high power rockets.

High power rockets must be flown in compliance with the High Power Rocket Safety Code.

Launching high power rockets requires more preparation than launching model rockets. Not only is a larger field needed, but FAA clearance must be arranged well in advance of the launch date. There may also be local or state regulatory issues to be addressed before you can fly your first high power rocket. This is another good reason for joining an NAR Section -- many organized clubs already have the personnel and experience in making these tedious arrangements, freeing you to concentrate on the actual flying.



Who Regulates Model Rocketry?

Most control of model rocketry is on the state and/or local level. 48 states adhere to a common code of regulation for model rocketry known as National Fire Protection Association (NFPA) Code 1122. This code defines the power, weight, and other limits to which a rocket must comply in order to be classified as a (relatively unregulated) "model rocket."

The federal government is, in comparison, less involved in regulating model rocketry. Model rocket kits and motors must satisfy the same basic product safety requirements as those imposed by the Consumer Product Safety Commission on toys. For this reason, certain types of model rocket motors -- such as "G" and "reloadable" motors -- are available only to modelers age 18 or over.

Model rockets are exempt from FAA regulation (thanks to FAR 101.1), provided they are operated in a manner so as not to pose a hazard to aircraft.

There is one exception to the general FAA exemption: you must notify the nearest FAA control tower of your activities when launching model rockets weighing between 454 and 1,500 grams, or whose total propellant mass is in the range between 113 and 125 grams.

Who Regulates High Power Rocketry?

High power rockets fall under a different code of regulations known as National Fire Protection Association (NFPA) Code 1127. This is a relatively new code (1995), and so some states have not yet had time to adopt it. You should check your own state's laws before attempting to launch high power rockets.

In addition, high power rockets and motors are directly regulated by the federal government:

You must apply for and receive an FAA waiver before launching high power rockets. The purpose of this waiver is to arrange for air traffic to be routed clear of your flight area.

You must apply for and receive a BATF Low Explosives User Permit before taking receipt of any rocket motors exceeding 62.5 grams of propellant, unless both you and the seller reside in the same state. This will involve, among other things, constructing "magazine storage" compliant to federal standards.



Where Is The Line Between Model and High Power Rocketry?

A rocket exceeds the definition of a model rocket under NFPA 1122 and becomes a high power rocket under NFPA 1127 if it:

Uses a motor with more than 160 Newton-seconds of total impulse (an "H" motor or larger) or multiple motors that all together exceed 320 Newton-seconds;

Uses a motor with more than 80 Newtons average thrust (see rocket motor coding);

Weights more than 1,500 grams including motor(s); or

Includes any airframe parts of ductile metal.